

AMENDMENTS TO THE CLAIMS

Claim 1 (Original) A tuning fork resonator comprising a base portion and a plurality of leg portions extending in the same direction from the base portion in parallel to one another, wherein a groove portion is formed in a major surface of each leg portion, an in-groove electrode is formed in the groove portion, a side surface electrode is formed on a side surface of the leg portion, and the in-groove electrode and the side surface electrode are connected via a base portion electrode formed in the base portion, wherein

an outward extending groove electrode extending on at least one of a vertical wall facing the base portion of the groove portion and a vertical wall that is a side surface of the groove portion and a leg portion tip-side major surface from the in-groove electrode of the groove portion, and a beside-groove electrode for leading the outward extending groove electrode on the leg portion major surface along beside the groove portion to the base portion electrode, are formed.

Claim 2 (Original) The tuning fork resonator according to claim 1, wherein the outward extending groove electrode is formed on at least the vertical wall that is the side surface of the groove portion, and

the beside-groove electrode is integrated with the outward extending groove electrode.

Claim 3 (Currently Amended) The tuning fork resonator according to claim 1 ~~or 2~~, wherein the groove portion formed in each of the plurality of leg portions is deviated from a center line of the leg portion in a width direction of the leg portion major surface, and the beside-groove electrode is deviated from the center line in the width direction opposite to that of the deviated groove portion.

Claim 4 (Original) The tuning fork resonator according to claim 3, wherein the groove portion is deviated from the center line of the leg portion in a direction away from another leg portion

parallel thereto, and the beside-groove electrode is deviated from the center line of the leg portion in a direction approaching the other leg portion parallel thereto.

Claim 5 (Currently Amended) The tuning fork resonator according to claim 1 ~~any of claims 1 to 4~~, wherein an electrode formed at an edge of the outward extending groove electrode is thicker than an electrode formed at an edge on a base portion side of the groove portion.

Claim 6 (Currently Amended) The tuning fork resonator according to claim 1 ~~any of claims 1 to 5~~, wherein the vertical wall of the groove portion is at a right or acute angle with respect to the leg portion major surface.

Claim 7 (Currently Amended) A tuning fork unit comprising the tuning fork resonator according to claim 1 ~~any of claims 1 to 6~~, wherein the tuning fork resonator is mounted in a package.

Claim 8 (Original) A method for producing a tuning fork resonator comprising a base portion and a plurality of leg portions extending in the same direction from the base portion in parallel to one another, wherein a groove portion is formed in a major surface of each leg portion, an in-groove electrode is formed in the groove portion, a side surface electrode is formed on a side surface of the leg portion, and the in-groove electrode and the side surface electrode are connected via a base portion electrode formed in the base portion, the method comprising:

disposing the tuning fork resonator in a work holder in a state such that the tuning fork resonator is spaced at a predetermined distance from a deposition source, an edge portion on a base portion side of the tuning fork resonator is closer to the deposition source than an edge on a leg portion side thereof, and the leg portion major surface of the tuning fork resonator is tilted with respect to the deposition source;

evaporating an electrode material from the deposition source and applying the electrode material to the tuning fork resonator; and

forming an outward extending groove electrode extending on at least one of a vertical wall facing the base portion of the groove portion and a vertical wall that is a side surface of the groove portion and a leg portion tip-side major surface, and a beside-groove electrode for leading the outward extending groove electrode on the leg portion major surface along beside the groove portion to the base portion electrode.

Claim 9 (New) The tuning fork resonator according to claim 2, wherein the groove portion formed in each of the plurality of leg portions is deviated from a center line of the leg portion in a width direction of the leg portion major surface, and the beside-groove electrode is deviated from the center line in the width direction opposite to that of the deviated groove portion.

Claim 10 (New) The tuning fork resonator according to claim 9, wherein the groove portion is deviated from the center line of the leg portion in a direction away from another leg portion parallel thereto, and the beside-groove electrode is deviated from the center line of the leg portion in a direction approaching the other leg portion parallel thereto.

Claim 11 (New) The tuning fork resonator according to claim 2, wherein an electrode formed at an edge of the outward extending groove electrode is thicker than an electrode formed at an edge on a base portion side of the groove portion.

Claim 12 (New) The tuning fork resonator according to claim 3, wherein an electrode formed at an edge of the outward extending groove electrode is thicker than an electrode formed at an edge on a base portion side of the groove portion.

Claim 13 (New) The tuning fork resonator according to claim 9, wherein an electrode formed at an edge of the outward extending groove electrode is thicker than an electrode formed at an edge on a base portion side of the groove portion.

Claim 14 (New) The tuning fork resonator according to claim 4, wherein an electrode formed at an edge of the outward extending groove electrode is thicker than an electrode formed at an edge on a base portion side of the groove portion.

Claim 15 (New) The tuning fork resonator according to claim 10, wherein an electrode formed at an edge of the outward extending groove electrode is thicker than an electrode formed at an edge on a base portion side of the groove portion.

Claim 16 (New) The tuning fork resonator according to claim 2, wherein the vertical wall of the groove portion is at a right or acute angle with respect to the leg portion major surface.

Claim 17 (New) The tuning fork resonator according to claim 3, wherein the vertical wall of the groove portion is at a right or acute angle with respect to the leg portion major surface.

Claim 18 (New) The tuning fork resonator according to claim 9, wherein the vertical wall of the groove portion is at a right or acute angle with respect to the leg portion major surface.

Claim 19 (New) The tuning fork resonator according to claim 4, wherein the vertical wall of the groove portion is at a right or acute angle with respect to the leg portion major surface.

Claim 20 (New) The tuning fork resonator according to claim 10, wherein the vertical wall of the groove portion is at a right or acute angle with respect to the leg portion major surface.